REMARKS

Claims 97-102 and 135, as amended, and new claims 164-171 are pending in the application for the Examiner's review and consideration. Claims 103-134 and 136-163 were canceled without prejudice. Applicant reserves the right to file one or more divisional or continuation applications directed to the subject matter of canceled claims 103-134 and 136-163 or other unclaimed subject matter. Claims 97-102 were amended to more particularly and distinctly recite the invention. Claim 97 was also amended to include the feature recited in claim 135 that the birefringent anisotropically absorbing layer is formed of at least one organic salt of a dichroic anionic dye (*See, e.g.*, claim 135, line 3). Accordingly, this feature was deleted from claim 135 that depends from claim 102. No new matter is added by these claim amendments so that their entry at this time is warranted.

THE REJECTION UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 97-102 and 135 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for the reasons set forth on page 3 of the Office Action. The Examiner alleges that it is unclear in claim 97 what components the polarizer is made up of. In response, Applicants have amended claim 97 to clearly recite that the polarizer comprises "a birefringent anisotropically absorbing layer" having certain characteristics, *i.e.*, that the "birefringent anisotropically absorbing layer has a refraction index that increases as the wavelength of polarizable light increases over a range of wavelengths" (*See, e.g.*, Specification, page 9, lines 10-17).

The Examiner further alleges that it is unclear what is meant by the phrase "birefringent layer." The Examiner queried whether this meant that the layer is birefringent. The Examiner is correct, the phrase "birefringent layer" simply means that the layer is birefringent. The term birefringent layer is well known to those skilled in the art (*See, e.g.*, http://www.eng.ox.ac.uk/lc/research/optics/extended_jones.PDF, a copy of which is enclosed herein for the Examiner's convenience) and is defined in the specification (*See, e.g.*, Specification, page 10, lines 15-27)..

The Examiner further alleges that it is unclear what is meant by the term "absorbing." The Examiner queried whether this meant that the layer absorbs certain wavelengths. The Examiner is correct, the term "absorbing" simply means that the layer absorbs certain wavelengths of light.

The Examiner further alleges that it is unclear what is meant by the phrase "refraction index." The Examiner queried whether this means "refractive index." "Refraction index" is exactly the same as "refractive index." These terms are used interchangeably by those of ordinary skill in the art (*See, e.g.*, http://library.thinkquest.org/28160/english/reflection/refract.html , a copy of which is enclosed herein for the Examiner's convenience) .

The Examiner also alleges that it is unclear what is meant by the phrase "a certain range of wavelength" and queried whether it means "a certain range of the spectrum of wavelengths." The Examiner is correct that the phrase means "a certain range of the spectrum of wavelengths." Accordingly, Applicants have amended claim 97 to recite that the "refraction index that increases as the wavelength of polarizable light increases over a range of the spectrum of wavelengths."

The Examiner alleges that the phrase "fragments of an unspecified shape" in claim 98 are unclear. In response, Applicants have amended claim 98 to delete the phrase "fragments of an unspecified shape" and to simply recite that the birefringent anisotropically absorbing layer comprises at least two fragments that differ from one another with respect to at least one of color or direction of their polarization axis.

The Examiner alleges the phrase "the polarizer as the substrate" in claim 102 is unclear since the polarizer is being claimed which is composed of different components. In response, Applicants have amended claim 102 to more clearly recite that the "birefringent anisotropically absorbing layer [which is formed on a surface of a substrate that is a birefringent plate or film having a main optical axis] is at an angle of 45° relative to the main optical axis of the substrate." For the above reasons, claims 97-102 and 135, as amended, are not indefinite. Accordingly, Applicant respectfully submits that the rejection of claims 97-102 and 135 under 35 U.S.C. §112, second paragraph, be reconsidered and withdrawn.

THE REJECTION UNDER 35 U.S.C. § 103(A)

Claims 97-102 were rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,739,296 to Gvon et al. ("Gvon") in view of U.S. Patent No. 5,712,024 to Okuzaki et al. ("Okuzaki") for the reasons set forth on pages 4-5 of the Office Action.

Gvon discloses a polarizing coating formed from dyestuffs of the formula {chromogen}$(SO_3)_m$, wherein M is H^+ or an inorganic salt, *i.e.*, a metal from the first group or

NH_4^+ (*See, e.g.*, Gvon, column 5, lines 45-50). The chromogen is such that the dyestuff is capable of existing in a liquid crystalline phase (*See, e.g.*, Gvon, column 5, lines 46-47).

Gvon does not disclose or suggest the polarizer of the invention. The polarizing coating disclosed in Gvon contains an inorganic salt of a dichroic dye. In contrast, independent claim 97, as amended, recites an organic salt of a dichroic dye. There is absolutely no disclosure or suggestion in Gvon of a polarizer comprising a birefringent anisotropically absorbing layer, wherein the birefringent anisotropically absorbing layer is formed of at least one organic salt of a dichroic anionic dye, as presently claimed. Moreover, there is absolutely no suggestion in Gvon to replace the inorganic salt disclosed therein with an organic salt.

Furthermore, the polarizer disclosed in Gvon is an dichroic polarizer. The principle of operation of the polarizer disclosed in Gvon is based only on the anisotropic absorption of light. In contrast, the polarizer used in the claimed invention, unlike the polarizer disclosed in Gvon, uses "abnormal dispersion," *i.e.*, the birefringent anisotropically absorbing layer has a refraction index that increases as the wavelength of polarizable light increases over a range of the spectrum of wavelengths (*See, e.g.*, Specification, page 56, lines 3-11). There is absolutely no disclosure or suggestion in Gvon that the polarizer disclosed therein should have the property of "abnormal dispersion," as presently claimed. Indeed, several of the inventors on the above-identified application are also inventors listed on Gvon. Accordingly, the inventors are well aware of Gvon and that the polarizer disclosed in Gvon operates only on the principal of anisotropic absorption of light and does not disclose or suggest a polarizer that uses "abnormal dispersion," as presently claimed. Accordingly, Gvon does not render claims 97-102 and 135 obvious.

Okuzaki does not remedy the deficiencies in Gvon. Okuzaki discloses an antireflection film that has an anti-reflection effect in a wide wavelength region (*See, e.g.*, Okuzaki, column 3, lines 24-27). The Examiner, cites Okuzaki as disclosing a dye having anisotropic absorbance wherein the refractive index grows as the wavelength increases and alleges that it would have been obvious to use the dye disclosed in Okuzaki in the polarizer disclosed in Gvon. Okuzaki does not disclose a birefringent anisotropically absorbing layer, as presently claimed. Rather, Okuzaki discloses an isotropic absorbing layer. There is absolutely no disclosure or suggestion in Okuzaki of a birefringent anisotropically absorbing layer, as presently claimed. Therefore, even if the dye disclosed on Okuzaki was used in the

polarizer disclosed in Gvon it would not result in the polarizer of the invention since it would result in a polarizer with an isotrpic layer rather than a birefringent anisotropic layer. Accordingly, the combination of Gvon and Okuzaki does not render the present claims obvious.

Gvon and Okuzaki, either individually or in combination, fail to disclose or suggest a polarizer that contains an organic salt of a dichroic dye or a polarizer that uses a birefringent anisotropically absorbing layer. For the above reasons, Applicants respectfully request that the rejection of claims 97-102 and 135 be reconsidered and withdrawn.

CONCLUSIONS

Applicant believes the application is in condition for allowance and earnestly requests reconsideration of the claims and allowance thereof. If the Examiner has any questions or suggestions to expedite allowance of this application, however, the Examiner is respectfully invited to call the undersigned to discuss the matter further.

No fee is believed to be due for this response. Should any fees be required, however, please charge such fees to Pennie & Edmonds LLP Deposit Account No. 16-1150.

Respectfully submitted,

Date November 12, 2002

Paul E. Dietze (Reg. No. 45,627)
For: Victor N. Balancia (Reg. No. 31,231)
PENNIE & EDMONDS LLP
1667 K Street, N.W.
Washington, DC 20006
(202) 496-4400

APPENDIX A

Changes to the Claims

Application No. 09/367,543 Filed: August 16, 1999

97. (Amended) A polarizer comprising [at least one] a birefringent anisotropically absorbing layer, wherein the [characterized in that at least one] birefringent anisotropically absorbing layer is formed of at least one organic salt of a dichroic anionic dye and [the anisotropically absorbing one and] has a [at least one] refraction index that increases [grows] as the wavelength of polarizable light [wavelength] increases [at least] over [at] a [certain] range of the spectrum of wavelengths.

98. (Amended) The polarizer of [according to] claim 97, wherein the [comprising at least one] birefringent anisotropically absorbing layer comprises [having] at least two fragments [of an unspecified shape,] that differ from one another with respect to at least one of color [colour] and[/or the] direction of their polarization axis [direction].

99. (Amended) The polarizer of [according to] claim 97, further comprising an alignment layer formed of at least one of an inorganic material[s] [and/]or different polymer materials.

100. (Amended) The polarizer of [according to] claim 97, further comprising a light reflecting layer.

101. (Amended) The polarizer of [according to] claim 97, wherein the [at least one] birefringent anisotropically absorbing layer is formed on a surface of a substrate.

102. (Amended) The polarizer of [according to] claim 101, wherein the substrate is a birefringent plate or film having a main optical axis and the [characterized in that said polarizer as the substrate, comprises a birefringent plate or film, at least one] birefringent anisotropically absorbing layer is [being formed] at an angle of 45° relative to the main optical axis of the substrate [said plate or film].

135. (Amended) The polarizer according to [any one of claims] claim 97[, 103, 113,] wherein the at least one birefringent anisotropically absorbing layer [is] formed[:] of at least one organic salt of a dichroic anionic dye has the [having] general formula:

{Chromogen} - $(XO^-M^+)_n$, where **Chromogen** is a dye chromophore system; **X** = CO, SO_2, OSO_2, $OPO(O^-M^+)$; **M** = RR'NH[2]$_2$ RR'R''NH; RR'R''R^N; RR'R" ^P wherein [when] R, R',R",R^ = CH_3, $C1C_2H_4$, C_2H_5, C_3H_7, C_4H_9, $C_6C_5H_2$, substituted phenyl or heteroaryl; $YH-(CH_2-CH_2Y)_m-CH_2CH_2$, Y=O, or NH, m=0-5; N-alkylpyridinium cation, N-alkylchinolinium cation, N-alkylimidazolinium cation, or N-alkylthiazolinium cation[, etc.]; **n** = 1-7;

or of at least one asymmetric mixed salt of a dichroic anionic dye with different cations of general formula:

$(M_1^+O^-X'-)_m[M_1^+O^-X'-(CH_2)_p-Z-]_g${Chro mogen}$[-Z-(CH_2)_p-XO^-M^+]_f(-XO^-M^+)_n$, wherein [where:] **Chromogen** is a dye chromophore system; Z =SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2; p = 1 - 10; f= 0-9; g = 0-9; n = 0-9, m = 0-9, n+f = 1-10: m+g = 1-10; **X, X'** = CO, SO_2, OSO_2, $PO(O^-M^+)$; **M** ≠ **M_1, M, M_1** = H; inorganic cation of the following type: NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co[, etc.]; organic cation of the following type: RNH_3, $RR'NH_2$, RR'R''NH; RR'R''R*N, RR'R''R*P, wherein [where] R, R', R", R* = alkyl or substituted alkyl of the following type: CH_3, ClC_2H_4, HOC_2H_4, C_2H_5, C_3H_7, C_4H_9, $C_6H_5CH_2$, substituted phenyl or heteroaryl, $YH-(CH_2-CH_2Y)k-CH_2CH_2-$, Y = O, or NH, k = 0-10; heteroaromatic cation of the following type N-alkylpyridinium, N-alkyichinolinium, N-alkylimidazolinium, N–alkythiazolinium [etc.];

or of at least one associate of a dichroic anionic dye with surface-active cation and/or amphoteric surfactant of general formula:

$(M^+O^-X'-)_m[M^+O^-X'-(CH_2)_p-Z-]_g$ {Chromogen} $(-Z-(CH_2)_p-XO^-SUR]_f$ $(XO^-SUR)_{ii}$, wherein [where] **Chromogen** is a dye chromophore system; **Z** =SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2; p = 1 - 10; f = 0-4; g = 0-9; n = 0-4, m = 0-9, n+f= 1-4: m+g = 0-9; **X, X'** = CO, SO_2, OSO_2, $PO(O^-M^+)$; **M** = H; inorganic cation of the following type: NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co[, etc.]; organic cation of the following type: RNH_3, $RR'NH_2$, RR'R"NH; RR'R''R*N; RR'R"R*P, where R, R', R", R* = alkyl or substituted alkyl of the following type: CH_3, $C1C_2H_4$, HOC_2H_4, C_2H_5, [-] $C_{10}H_{21}$, $C_6H_5CH_2$, substituted phenyl or heteroaryl, $YH-(CH_2-CH_2Y)_k-CH_2CH_2-$, Y = 0[,] or NH, k = 0-10; heteroaromatic cation of the following type N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium, N--

alkyithiazolinium[, etc.]; $K'SUR^+$, SUR = $KSUR^+$, $K'SUR^+$, AmSUR, wherein [where:] $KSUR^+$ and $K'SUR^+$ are surface-active cations[,] and AmSUR is an amphoteric surfactant;

or of at least one associate of a dichroic cationic dye with a surface-active anion and/or an amphoteric surface-active dye of general formula:

$(M^+O^-X-)_m$ $[M^+O^-X'-CH_2)_p-Z-]_g$ {**Chromogen**$^+$} **SUR**, where **Chromogen** is a dye chromophore system; **Z** =SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2; p = 1-10; g = 0 -1; m = 0-1; m+g=1; X = CO, SO_2, OSO_2, $PO(O^-M^+)$; **M** = H; inorganic cation of the following type: NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co[, etc.]; organic cation of the following type: RNH_3 RR'NH; RR'R'' NH; RR'R" R*N; RR'R''R*P, wherein [where] R, R',R" R * = alkyl or substituted alkyl of the following type: CH_3, $C1C_2H_4$, HOC_2H_4, $C_2H_{5,}$ [-]$C_{10}H_{21}$, $C_6H_5CH_2$, substituted phenyl or heteroaryl, $YH-(CH_2-CH_2Y)_k-CH_2CH_2$, Y = O, or NH, k = 0-10; heteroaromatic cation of the following type: N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium, N-alkylthiazolinium[, etc.]; $KSUR^+$ is a [(]surface-active cation[)], SUR = ASUR, AmSUR, wherein [where:] ASUR is surface active cation[,] and AmSUR is an amphoteric surfactant;

or at least of one associate of a dichroic cationic dye with a surface-active cation and/or amphoteric surfactant of general formula:

{Chromogen}-[Z-$(CH_2)_p$ - X^+ RR'R" SUR]$_n$, where **Chromogen** is a dye chromophore system; **Z** = SO_2NH, SO_2, CONH, CO, O, S, NH, $CH_{2;}$, p = 1-10; **X** = N, P; R, R', R" = alkyl or substituted alkyl of the following type: CH_3, $C1C_2H_4$, HOC_2H_4, C_2H_5, C_3H_7, **SUR** = ASUR[,] or AmSUR, wherein [where:] $ASUR^-$ is a surface-active anion[,] and AmSUR is an amphoteric surfactant; n = 1-4;

or of at least one water-insoluble dichroic dye and/or a pigment that do not contain ionogenic or hydrophilic groups;

or of at least one low-molecular thermotropic liquid-crystal substance being a dichroic dye or containing, as a component, a liquid-crystal and/or a dichroic dye other than liquid-crystal dye and vitrified in this or other manner, for example after application of a layer by curing using ultraviolet radiation;

or of at least on polymer material other than liquid-crystal one, with a controlled degree of hydrophilicity, dyed with a dichroic dye and/or an iodine compounds;

or of at least one polymer thermoptropic liquid-crystal and/or non-liquid crystal substance comprising solved in mass and/or chemically bonded with a polymer chain dichroic dyes; or

at least of one dichrioic dye capable of forming a lyotropic liquid-crystal phase;
or at least of one dichrioic dye of the polymer structure;
or at least of one water-soluble organic dye capable of forming a stable lyotropic liquid-crystal phase of general formula **{Chromogen}** $(SO_3M)_n$, where **Chromogen** is a dye chromophore system; M ≡ [-] H^+[,] or a inorganic cation;
[or] and mixtures thereof [of their mixes].

APPENDIX B

Currently Pending Claims

Application No. 09/367,543 Filed: August 16, 1999

97. (Amended) A polarizer comprising a birefringent anisotropically absorbing layer, wherein the birefringent anisotropically absorbing layer is formed of at least one organic salt of a dichroic anionic dye and has a refraction index that increases as the wavelength of polarizable light increases over a range of the spectrum of wavelengths.

98. (Amended) The polarizer of claim 97, wherein the birefringent anisotropically absorbing layer comprises at least two fragments that differ from one another with respect to at least one of color and direction of their polarization axis.

99. (Amended) The polarizer of claim 97, further comprising an alignment layer formed of at least one of an inorganic material or different polymer materials.

100. (Amended) The polarizer of claim 97, further comprising a light reflecting layer.

101. (Amended) The polarizer of claim 97, wherein the birefringent anisotropically absorbing layer is formed on a surface of a substrate.

102. (Amended) The polarizer of claim 101, wherein the substrate is a birefringent plate or film having a main optical axis and the birefringent anisotropically absorbing layer is at an angle of 45° relative to the main optical axis of the substrate.

135. (Amended) The polarizer according to claim 97, wherein the at least one birefringent anisotropically absorbing layer formed of at least one organic salt of a dichroic anionic dye has the general formula:

{Chromogen} - $(XO^-M^+)_n$, where **Chromogen** is a dye chromophore system; **X** = CO, SO_2, OSO_2, $OPO(O^-M^+)$; **M** = RR'NH[2]$_2$ RR'R''NH; RR'R''R^N; RR'R" ^P wherein R, R',R",R^ = CH_3, $C1C_2H_4$, C_2H_5, C_3H_7, C_4H_9, $C_6C_5H_2$, substituted phenyl or heteroaryl; YH-$(CH_2$-$CH_2Y)_m$-CH_2CH_2, Y=O, or NH, m=0-5; N-alkylpyridinium cation, N-alkylchinolinium

cation, N-alkylimidazolinium cation, or N-alkylthiazolinium cation; **n** = 1-7;
or of at least one asymmetric mixed salt of a dichroic anionic dye with different cations of general formula:

$(M_1^+O^-X'\text{-})_m[M_1^+O^-X'\text{-}(CH_2)_p\text{-}Z\text{-}]_g\{\textbf{Chro mogen}\}[\text{-}Z\text{-}(CH_2)_p\text{-}XO^-M^+]_f(\text{-}XO^-M^+)_n$,

wherein: **Chromogen** is a dye chromophore system; Z =SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2; p = 1 - 10; f= 0-9; g = 0-9; n = 0-9, m = 0-9, n+f = 1-10: m+g = 1-10; **X, X'** = CO, SO_2, OSO_2, $PO(O^-M^+)$; **M** ≠ $\mathbf{M_1}$, **M**, $\mathbf{M_1}$ = H; inorganic cation of the following type: NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co; organic cation of the following type: RNH_3, $RR'NH_2$, RR'R''NH; RR'R''R*N, RR'R''R*P, wherein R, R', R", R* = alkyl or substituted alkyl of the following type: CH_3, ClC_2H_4, HOC_2H_4, C_2H_5, C_3H_7, C_4H_9, $C_6H_5CH_2$, substituted phenyl or heteroaryl, YH-$(CH_2\text{-}CH_2Y)$k-CH_2CH_2-, Y = O, or NH, k = 0-10; heteroaromatic cation of the following type N-alkylpyridinium, N-alkyichinolinium, N-alkylimidazolinium, N–alkythiazolinium;
or of at least one associate of a dichroic anionic dye with surface-active cation and/or amphoteric surfactant of general formula:

$(M^+O^-X'\text{-})_m[M^+O^-X'\text{-}(CH_2)_p\text{-}Z\text{-}]_g$ **{Chromogen}** $(\text{-}Z\text{-}(CH_2)_p\text{-}XO^-SUR]_f$ $(XO^-SUR)_{ii}$,

wherein **Chromogen** is a dye chromophore system; **Z** =SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2; p = 1 - 10; f = 0-4; g = 0-9; n = 0-4, m = 0-9, n+f= 1-4: m+g = 0-9; **X, X'** = CO, SO_2, OSO_2, $PO(O^-M^+)$; **M** = H; inorganic cation of the following type: NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co; organic cation of the following type: RNH_3, $RR'NH_2$, RR'R"NH; RR'R''R*N; RR'R"R*P, where R, R', R", R* = alkyl or substituted alkyl of the following type: CH_3, $C1C_2H_4$, HOC_2H_4, C_2H_5, $C_{10}H_{21}$, $C_6H_5CH_2$, substituted phenyl or heteroaryl, YH-$(CH_2\text{-}CH_2Y)_k$-CH_2CH_2-, Y = 0 or NH, k = 0-10; heteroaromatic cation of the following type N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium, N-alkyithiazolinium; $K'SUR^+$, SUR = $KSUR^+$, $K'SUR^+$, AmSUR, wherein $KSUR^+$ and $K'SUR^+$ are surface-active cations and AmSUR is an amphoteric surfactant;
or of at least one associate of a dichroic cationic dye with a surface-active anion and/or an amphoteric surface-active dye of general formula:

$(M^+O^-X\text{-})_m$ $[M^+O^-X'\text{-}CH_2)_p\text{-}Z\text{-}]_g$ $\{\textbf{Chromogen}^+\}$ **SUR**, where **Chromogen** is a dye chromophore system; **Z** =SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2; p = 1-10; g = 0 -1; m = 0-1; m+g=1; X = CO, SO_2, OSO_2, $PO(O^-M^+)$; **M** = H; inorganic cation of the following type: NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co; organic cation of the following type: RNH_3

RR'NH; RR'R'' NH; RR'R" R*N; RR'R''R*P, wherein R, R',R" R * = alkyl or substituted alkyl of the following type: CH_3, $C1C_2H_4$, HOC_2H_4, C_2H_5,$C_{10}H_{21}$, $C_6H_5CH_2$, substituted phenyl or heteroaryl, $YH-(CH_2-CH_2Y)_k-CH_2CH_2$, Y = O, or NH, k = 0-10; heteroaromatic cation of the following type: N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium, N-alkylthiazolinium; $KSUR^+$ is asurface-active cation, SUR = ASUR, AmSUR, wherein ASUR is surface active cation and AmSUR is an amphoteric surfactant;
or at least of one associate of a dichroic cationic dye with a surface-active cation and/or amphoteric surfactant of general formula:

{Chromogen}-[Z-$(CH_2)_p$ - X^+ RR'R" SUR]$_n$, where **Chromogen** is a dye chromophore system; **Z** = SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2,, p = 1-10; **X** = N, P; R, R', R" = alkyl or substituted alkyl of the following type: CH_3, $C1C_2H_4$, HOC_2H_4, C_2H_5, C_3H_7, **SUR** = ASUR or AmSUR, wherein $ASUR^-$ is a surface-active anion and AmSUR is an amphoteric surfactant; n = 1-4;
or of at least one water-insoluble dichroic dye and/or a pigment that do not contain ionogenic or hydrophilic groups;
or of at least one low-molecular thermotropic liquid-crystal substance being a dichroic dye or containing, as a component, a liquid-crystal and/or a dichroic dye other than liquid-crystal dye and vitrified in this or other manner, for example after application of a layer by curing using ultraviolet radiation;
or of at least on polymer material other than liquid-crystal one, with a controlled degree of hydrophilicity, dyed with a dichroic dye and/or an iodine compounds;
or of at least one polymer thermoptropic liquid-crystal and/or non-liquid crystal substance comprising solved in mass and/or chemically bonded with a polymer chain dichroic dyes; or at least of one dichrioic dye capable of forming a lyotropic liquid-crystal phase;
or at least of one dichrioic dye of the polymer structure;
or at least of one water-soluble organic dye capable of forming a stable lyotropic liquid-crystal phase of general formula **{Chromogen} $(SO_3M)_n$**, where **Chromogen** is a dye chromophore system; M = H^+or a inorganic cation;
and mixtures thereof.

164. (New) A polarizer, comprising at least one birefringent and anisotropically absorbing light layer having at least one refraction index that grows as the polarizable light

wavelength increases at least at a certain range of the wavelengths, wherein at least one birefringent and anisotropically absorbing light layer has the thickness whereat the interference extremum is realized at output of the polarizer at least for one light linearly-polarized component.

165. (New) The polarizer according to claim 164, wherein at least one birefringent and anistropically absorbing light layer has at least one refraction index that is directly proportional to the polarized light wavelength at least at a certain range of the wavelengths.

166. (New) The polarizer according to claim 164, wherein the thickness of at least one birefringent and anisotropically absorbing light layer satisfies the condition of obtaining, at output of the polarizer, the interference minimum for one linearly-polarized light component and the interference maximum for the other orthogonal linearly-polarized light component.

167. (New) The polarizer according to any one of claims 164-165, further comprising an optically isotropic layer, whose refraction index coincides with, or maximally proximate to one of indices of the birefringent anisotropically absorbing layer.

168. (New) The polarizer according to any one of claims 164-165, further comprising birefringent layer one refraction index of which layer coincides with, or maximally proximate to one of indices of the birefringent anisotropically absorbing layer, and the second refraction indices of the birefringent layer and birefringent anisotropically absorbing layer differ from one another.

169. (New) The polarizer according to any one of claims 164-166, wherein at least one birefringent anisotropically absorbing layer is formed:
of at least one organic salt of a dichroic anionic dye having general formula:
{Chromogen} - $(XO^-M^+)_n$, where Chromogen is a dye chromophore system; **X** = CO, SO_2, $O5O_2$, $OPO(O^-M^+)$; **M** = RR'NH[2]$_2$RR'R"NH; RR'R"R^N; RR'R" ^P when R, R',R", R^ = CH_3, $C1C_2H_4$, C_2H_5, C_3H_7, C_4H_9, $C_6C_5H_2$, substituted phenyl or heteroaryl; $YH-(CH_2-CH_2Y)_{m-}$ CH_2CH_2, Y=O, or NH, m=0-5; N-alkylpyridinium cation, N-alkylchinolinium cation, N-

alkylimidazolinium cation, N-alkylthiazolinium cation, etc.; **n** = 1-7;

or of at least one asymmetric mixed salt of a dichroic anionic dye with different cations of general formula:

$(M_1^+O^-X'-)_m[M_1^+O^-X'-(CH_2)_p-Z-]_g\{\textbf{Chromogen}\}[-Z-(CH_2)_p-XO^-M^+]_f(-XO^-M^+)_n$, where: **Chromogen** is a dye chromophore system; **Z** =SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2 p = 1 - 10; f= 0-9; g = 0-9; n = 0-9, m = 0-9, n+f = 1-10: m+g = 1-10; **X, X'** = CO, SO_2, OSO_2, $PO(O^-M^+)$; **M** ≠ $\mathbf{M_1}$, **M**, $\mathbf{M_1}$ = H; inorganic cation of the following type: NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co, etc.; organic cation of the following type: RNH_3, $RR'NH_2$, RR'R''NH; RR'R''R*N, RR'R''R*P, where R,R', R", R* = alkyl or substituted alkyl of the following type: CH_3 ClC_2H_4, HOC_2H_4, C_2H_5, C_3H_7, C_4H_9, $C_6H_5CH_2$, substituted phenyl or heteroaryl, YH-(CH_2-CH_2Y)k-CH_2CH_2-, Y = O, or NH, k = 0-10; heteroaromatic cation of the following type N-alkylpyridinium, N-alkychinolinium, N-alkylimidazolinium, N–alkythiazolinium etc.;

or of at least one associate of a dichroic anionic dye with surface-active cation and/or amphoteric surfactant of general formula:

$(M^+O^-X'-)_m[M^+O^-X'-(CH_2)_p-Z-]_g$ **{Chromogen}** $(-Z-(CH_2)_p-XO^-SUR]_f$ $(XO^-SUR)_n$, where **Chromogen** is a dye chromophore system; **Z** =SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2; p = 1 - 10; f = 0-4; g = 0-9; n = 0-4, m = 0-9, n+f= 1-4: m+g = 0-9; **X, X'** = CO, SO_2, OSO_2, $PO(O^-M^+)$; **M** = H; inorganic cation of the following type: NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co, etc.; organic cation of the following type: RNH_3, $RR'NH_2$, RR'R"NH; RR'R''R*N; RR'R"R*P, where R,R', R", R* = alkyl or substituted alkyl of the following type: CH_3, $C1C_2H_4$, HOC_2H_4, C_2H_5, $C_{10}H_{21}$, $C_6H_5CH_2$, substituted phenyl or heteroaryl, YH-(CH_2-CH_2Y)$_k$-CH_2CH_2-, Y = 0, or NH, k = 0-10; heteroaromatic cation of the following type N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium, N-alkyithiazolinium, etc.; $K'SUR^+$, **SUR** = $KSUR^+$, $K'SUR^+$, AmSUR, where: $KSUR^+$ and $K'SUR^+$ are surface-active cations, AmSUR is amphoteric surfactant;

or of at least one associate of a dichroic cationic dye with a surface-active anion and/or an amphoteric surface-active dye of general formula:

$(M^+O^-X-)_m$ $[M^+O^-X'-CH_2)_p-Z-]_g$ $\{\textbf{Chromogen}^+\}$ **SUR**, where **Chromogen** is a dye chromophore system; **Z** =SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2; p = 1-10; g = 0 -1; m = 0-1; m+g=1; X = CO, SO_2, OSO_2, $PO(O^-M^+)$; **M** = H; inorganic cation of the following type: NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co, etc.; organic cation of the following type: RNH_3

RR'NH; RR'R'' NH; RR'R" R*N; RR'R''R*P, where R, R',R" R *alkyl or substituted alkyl of the following type: CH_3, $C1C_2H_4$, HOC_2H_4, C_2H_5, $-C_{10}H_{21}$, $C_6H_5CH_4$, substituted phenyl or heteroaryl, $YH-(CH_2-CH_2Y)_k-CH_2CH_2$, Y = O, or NH, k = 0-10; heteroaromatic cation of the following type: N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium, N-alkylthiazolinium, etc.; $KSUR^+$ (surface-active cation), **SUR** = ASUR, AmSUR, where: AmSUR is surface active cation, AmSUR is amphoteric surfactant;
or at least of one associate of a dichroic cationic dye with a surface-active cation and/or amphoteric surfactant of general formula:
{Chromogen}-[Z-$(CH_2)_p$ - X^+ RR'R" SUR]$_n$, where **Chromogen** is a dye chromophore system; **Z** = SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2, p = 1-10; **X** = N, P; R, R', R" = alkyl or substituted alkyl of the following type: CH_3, ClC_2H_4, HOC_2H_4, C_2H_5, C_3H_7, **SUR** = ASUR, AmSUR, where: $ASUR^-$ is a surface-active anion, AmSUR is an amphoteric surfactant; **n** = 1-4;
or of at least one water-insoluble dichroic dye and/or a pigment that do not contain ionogenic or hydrophilic groups;
or of at least one low-molecular thermotropic liquid-crystal substance being a dichroic dye or containing, as a component, a liquid-crystal and/or a dichroic dye other than liquid-crystal dye and vitrified in this or other manner, for example after application of a layer by curing using ultraviolet radiation;
or of at least on polymer material other than liquid-crystal one, with a controlled degree of hydrophilicity, dyed with a dichroic dye and/or an iodine compounds;
or of at least one polymer thermoptropic liquid-crystal and/or non-liquid crystal substance comprising solved in mass and/or chemically bonded with a polymer chain dichroic dyes; or at least of one dichrioic dye capable of forming a lyotropic liquid-crystal phase;
or at least of one dichrioic dye of the polymer structure;
or at least of one water-soluble organic dye capable of forming a stable lyotropic liquid-crystal phase of general formula **{Chromogen} $(SO_3M)_n$**, where **Chromogen** is a dye chromophore system; M - H^+, a inorganic cation;
or of their mixes.

170. (New) A liquid crystal display element comprising:
first and second plates;

a liquid crystal material between the first and second plates; and

a polarizer comprising a birefringent anisotropically absorbing layer, wherein the birefringent anisotropically absorbing layer is formed of at least one organic salt of a dichroic anionic dye and has a refraction index that increases as the wavelength of polarizable light increases over a range of the spectrum of wavelengths between said first and second plates.

171. (New) A liquid crystal display element comprising:

first and second plates;

a liquid crystal material between the first and second plates; and

a polarizer comprising at least one birefringent and anisotropically absorbing light layer having at least one refraction index that grows as the polarizable light wavelength increases at least at a certain range of the wavelengths, wherein at least one birefringent and anisotropically absorbing light layer has the thickness whereat an interference extremum is realized at output of the polarizer at least for one light linearly-polarized component between said first and second plates.